WITK

The Spark Gap

DECEMBER 1982

Book VII Vol XII

Official Journal of the Wellesley Amateur Radio Society

MESSAGE FAIR

As all of you should know by now, December is the month of the Natick Mall Message Fair, the one event of the year when we really get an opportunity to make ourselves known in the community while providing a nice public service. Showing off Amateur Radio for a week in a shopping mall during the busy holiday season as well as sending holiday messages for people is probably the best way we have of making the public aware of the good side of our hobby instead of finding out about us due to TVI or what our neighbors may view as an unsightly antenna installation.

This year we should have more displays than ever before. Erik Thoresen, K1OGF, who is this year's coordinator is looking for any kind of display/demonstration/poster that will catch the public's eye, with a special desire to interest the potential Novice. Our demonstrations this year will include a Morse code sending and receiving computer, fully operational RTTY setup, several HF and VHF stations, and possible even SSTV. For those of you who are interested in trying some of this equipment, this is a good chance as everything should be available for club members to use. Also, if you have some unusual piece of equipment that you could bring, or can help making some posters, contact Erik as he would be happy to hear from you.

While the demonstrations are there to attract attention, our main purpose is to send holiday messages and in the past we usually send close to a thousand during our stay. People will be needed each night both to help the public write up their messages and to actually transmit them. No previous experience is required, however, as anything you will need to know you will be shown on the spot (and get plenty of practice after!). If you don't know anything about traffic handling, and all hams should, here is a good opportunity to learn.

One final objective this year will be to recruit students for our Novice class which is scheduled to start January 11. We have always had a number of requests for a class during our mall setup so this year we are planning the class around the message fair, and hope to do a serious recruiting job.

The dates for this years Natick Mall Message Fair are December 15th through the 19th. Weeknights operation will start about 6:00 p.m. and end when the mall closes at 10:00. Saturday we will be there from 10:00 a.m. to 10:00 p.m. and on Sunday from noon to 6:00. Feel free to come at any time during these hours. Help is also needed on December 14 and December 19 to set up and take down. If you can help in any way, please contact Erik Thoresen at 653-1216.

MEETINGS THIS MONTH:

None. See you all at the Natick Mall Message Fair, December 15th through December 19th, 1982.

OFFICIAL BULLETIN

Number 94, dated October 22, 1982:

In its October 21 meeting, FCC adopted an order allowing Morse code examination credit to anyone holding, currently or in the past five years, a valid U.S. commercial radiotelegraph license. FCC ordered the adoption of rules defining a beacon station and permitting automatic operation of these stations. See February 1982 QST for details. FCC adopted an NPRM asking whether most logging requirements should be dropped. FCC also adopted an NPRM to revise procedures for administering the Novice class exam so that only one form would be required to issue the license. No comment deadline has been set but is is expected that FCC will allow 90 days from the date of issuance for interested parties to file comments in each NPRM. FCC also dismissed three petitions pertaining to CB radio. Additional information on these matters will appear in December and January QST and in the October 29 issue of the ARRL Letter.

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Number 95, dated October 28, 1982:

At 3 p.m. EDT Thursday, October 28, FCC released the major portion of the 10 MHz band for use by Amateurs in its jurisdiction. Effective immediately, U.S. Amateurs holding General, Advanced and Extra Class licenses may use up to 250 watts input and A1 and F1 emissions in the band segments 10.100-10.109 and 10.115-10.150 MHz. These emissions include CW and RTTY operation; voice modes are not permitted. The segment 10.109-10.115 MHz is not available at this time because of daily use by a priority government radio service. Amateur stations must avoid interfering with stations in the Fixed Service because the band is allocated on a primary basis to the Fixed Service and these stations have priority. The Amateur allocation is on a secondary basis.

NEW CLUB MEMBERS

We would like to welcome the following new people who have recently joined the Wellesley Amateur Radio Society: Arnie Adelman, W1GCI, of Berlin; Chris Germano, KA1JHU, of Northboro; and Harry Kessinger, KA1IJM, of West Roxbury. We would also like to welcome the following people back into the club after an absence: Farrell Woods, WB1ELQ; and Jordan Ring, K1UN. We hope all of you will take the opportunity to participate in many of the club's activities during the upcoming year. The club is after all only what you make of it.

THE WESTLINK REPORT
THE AMATEUR RADIO NEWSLETTER

Sonic Cable TV in California has been fined $6000 for failure to clean up its leakage problem. The action comes a year and a day after Richard Helzer, WA6GVO began his campaign t rid the area of the leakage probl caused by Sonic's premium programming on cable channel "E" which falls in the 2 meter band. Radiation from Sonic's operations made it impossible for many Amateurs in the area to utilize a large portion of "two."

Westlink Report, October 22, 1982

OFFICERS

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Kevin Kelly, WA1YHV, 242-0341
OPERATING ACTIVITIES:
Erik Thoresen, K1OGF, 653-1216

The Spark Gap

Official Journal of the Wellesley Amateur Radio Society

EDITOR-IN-CHIEF:

NELS J. ANDERSON, K1UR
32 WESTGATE ROAD, APT. 6
CHESTNUT HILL, MASS. 02167
323-5029

THE "SPARK GAP" IS A MONTHLY PUBLICATION OF THE WELLESLEY AMATEUR RADIO SOCIETY. ITS PRIMARY PURPOSE IS TO KEEP ITS MEMBERS ABREAST OF CURRENT HAPPENINGS, F.C.C. RULES & REGULATIONS CHANGES, AND TO LIST EQUIPMENT OFFERED FOR SALE OR TRADE BY MEMBERS. MEMBERS ARE ENCOURAGED TO CONTRIBUTE TO THE "SPARK GAP" AND MAY SENT THEIR ARTICLES (TYPEWRITTEN IF POSSIBLE) TO THE EDITOR-IN-CHIEF OR TO THE CLUB ADDRESS.

THE WELLESLEY AMATEUR RADIO SOCIETY IS A NON-PROFIT ORGANIZATION DEDICATED TO THE PROMOTION OF AMATEUR RADIO THROUGH INSTRUCTION, FELLOWSHIP, DEMONSTRATION, AND ENCOURAGEMENT OF PARTICIPATION. ANNUAL MEMBERSHIP IN THE SOCIETY IS $8. THE CLUB YEAR RUNS SEPTEMBER 1 TO AUGUST 31. AMATEUR NOVICE AND GENERAL CLASSES ARE CONDUCTED REGULARLY AT NO COST. TO ENROLL IN A CLASS, OR GAIN INFORMATION ABOUT THE SOCIETY IN GENERAL, WRITE:

THE WELLESLEY AMATEUR RADIO SOCIETY
324 WASHINGTON STREET
WELLESLEY HILLS, MASS. 02181

Minutes

Meeting of October 21, 1982:

The meeting was opened at 7:41 p.m. by President David Curry, K1TK, to a full house.

The treasurer's report was given.

People were requested to sign up for the Natick Mall Message Fair for which organization is getting underway.

A report was given on the successful Wellesley Veteran's Parade operation.

It appears that no one else is planning on running a New England ARRL Convention in 1983, so it's open to us if we want it. Ideas about any portion of the operation and especially about funding are solicited.

It was announced that Dick Paret, WA1ZLQ, and David Curry, K1TK, will observe the Amateur Radio operations at the New York Marathon on Sunday, October 24.

The meeting was adjourned at 7:56 p.m. to the evenings speaker.

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Meeting of November 4, 1982:

The meeting was opened at 7:42 p.m. by President David Curry, K1TK, with about ten present.

The secretary's report was given.

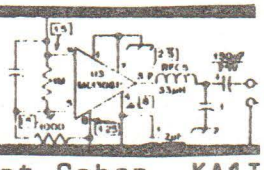
The treasurer's report was given. He reported that we currently have 57 paid up members.

The Natick Mall Message Fair dates have been confirmed. The new management at the mall is enthusiastic about our exhibit and has offered some help as well as giving some suggestions.

A motion was made and passed to renew Westlink Report for three years at the reduced rate they are currently offering so that this will continue to be available to the Spark Gap editor.

The meeting was closed at 8:33 p.m.

Tek Tok



by Mort Cohan, KA1IU

This method is most applicable to a dipole for 75/80 meters over the 3.5 to 4 MHz range. A full size dipole has a fairly high SWR at the band edges if it is resonant at 3.75 MHz. If cut to favor CW or phone portions, SWR at the opposite end is very high.

Consider that the antenna reactance varies much faster than the resistance off resonance. At a lower frequency the antenna is too short, hence capacitive. At a higher frequency the antenna is too long, hence inductive. To flatten the apparent SWR, we can connect some network in parallel with the antenna feed point that is capacitive above resonance and inductive below. If we choose the L and C value optimally, we can approximately cancel the off-resonance reactance over the

whole 75/80 meter band.

A parallel resonant network fills the bill. Computer calculations indicate that at the antenna resonant frequency L and C should have an impedance of 25 ohms. The easiest way to do this is with a shorted coax stub for the inductance and an open stub for the capacitance. The easiest way to connect it is not up in the air at the feedpoint, but rather one half wavelength away down the feedline. At 75 meters the high SWR on the first half-wave of feed is of no consequence. The reactance of stubs of less than one-quarter wavelength is:

Z(shorted) = Z0*tan L

Z(open) = -Z0*cot L

where L is the length in electrical degrees (remember the velocity factor of 0.66 for solid dielectric coax), and Z0 is the cable impedance, or 50 ohms for RG8 or RG58. Don't use foam dielectric coax as the velocity factor can vary somewhat from nominal values.

Since we want Z=25 ohms, Z/Z0=0.5, punch 0.5 into your calculator, followed by inverse tan or arc tan, and you will see 26.56, if set for angle units of degrees. One wavelength or 360 degrees in coax is

$$\frac{984.25*V}{F}$$

Thus 360 degrees at 3.75 MHz is (984.25*0.66)/3.75 = 173.2 feet, and our shorted 26.56 degree stub is 12.78 feet. Due to the relation between tan and cot the sum of the two stubs is always a quarter wave in cable or (984.25*0.66*90)/(F*360) as a quarter wave is 90 degrees, that is 43.3 feet, at 3.75 MHz. So the open stub is 43.3-12.78=30.52 feet. The dipole is about 126 feet long, pruned for best SWR at 3.75 MHz. Put the stubs on a T-connector, put another T-connector in the feedline one-half wave down the cable (86.6 feet, which usually will wind up down on the ground or in your shack) and connect the male connectors on the T's with a barrel connector. Weatherproof the junction if necessary. At KA1IU RG58 is used as the stubs, with up to 700 watts RF. The shorted stub will not have real high voltages on it so RG8 is not needed. At the open end of the other stub cut back the shield cleanly about one half inch and wrap with plenty of vinyl tape as voltage is high at that open end.

The antenna will now show an SWR below 2:1 from 3.55 to 3.95 MHz, rising very fast outside that range. Measured data agreed very well with calculations. Differences were mostly due to the mathematical approximation used for the bare dipole impedance, which is inaccurate because the real dipole is affected by being near ground. There is a difference between stubs at the feedpoint and a half wave away in absolute impedance values, but the SWR gets fixed about the same way.

Crossbander

Massachusetts House Bill 6020 has been stalled in the House Ways and Means Committee since April pending reconsideration. WA1LAD learned this information August 16th after talking with Fourth District Representative Aguirre. H.B. 6020 (formerly H.B. 4175) would decrease the cost of Amateur callsign license plates from the present $20 fee to $10 per year. Thanks, The Networks.

Crossbander, October 15, 1982

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The ARRL Division Convention in Boxboro set a record for the number of attendees, according to Convention Committee official Gene Hastings, W1VRK. But although actual attendance was "way up" (based on parking lot estimates), Hastings indicated the number of paid registrants was actually within 15 of 1980's total! He attributed this discrepency to the fact that many people simply walked in without buying a ticket. "I guess," said W1VRK, "the old honor system is breaking down." Hastings declined to mention the specific number of paid attendees, but he added that "all the commercial exhibitors were extreme

pleased" with the turnout.

Crossbander, October 15, 1982

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A unique "repeater's repeater" uld be on the air soon. The brainchild of Tunbridge, Vermont ham Frank Duffy, K1MOQ, the passive system would link together many repeaters via 220 MHz. Over two years ago Duffy wanted a means of communicating with friends in New Hampshire and Vermont during his frequent trips to Boston. An operational link that Duffy helped to establish beween the 146.37/97 Tunbridge machine and a 220 MHz repeater in Derry, NH worked so well that he is now interested in establishing what he calls a repeater's repeater. K1MOQ recently approached one repeater group in Boston about joining. He welcomes other repeater groups who may be interested as well. "The Montreal Amateurs are very enthusiastic" about joining the link, says Duffy. He added, "other repeaters are welcome to join and experiment with the link."

Crossbander, October 15, 1982

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"AMTOR: Error-free RTTY for Radio ateurs" will be discussed by Bill yn, K4PA, during LIMARC's next national teleconference on December 2 at 8:30 p.m. The talk can be heard on the Honeywell 1200 Radio Club's 147.72/12 repeater in Billerica.

Crossbander, November 15, 1982

THE WESTLINK REPORT
THE AMATEUR RADIO NEWSLETTER

Amateur Radio will be operated from the Space Shuttle Columbia. Astronaut Dr. Owen Garriott, W5LFL, has been granted tentative permission from NASA to use 2 meter FM from the orbiter during the STS-9 mission, scheduled for October 1983. Present plans call for Garriot to use a low power rig such as a handy talky or a "black box" constructed in the ARRL lab. The radio will be required to meet the rigid specifications of the shuttle as determined by NASA.

ARRL President Vic Clark, W4KFC, is personally overseeing the project for the League and it is expected that all coordination of the Amateur portion of the STS-9 mission will be handled through Bernard Glassmeyer, W9KRD, its Satellite Coordinator. AMSAT is expected to play a significant role as well.

Garriott's Amateur operation from Columbia will be limited to the lower two Megahertz of the band in the interest of making this a world-wide good will mission, and to avoid "20 meter type" pile-ups on U.S. and Canadian repeater systems. The exact frequencies that will be used, as well as the proper procedure to work the spacecraft will be announced later. To avoid confusion and pile-ups, several ideas are being considered, including the designation of specific repeaters around the world to act as "gateway" stations through which all QSO's will be coordinated.

The "approvals" for this first manned space Amateur experiment have been okayed by NASA in Houston and only await a final "green light" from Washington. Credit for this "first" belongs to the ARRL, along with Garriott and NBC Network News Correspondent Roy Neal, K6DUE.

Westlink Report, October 22, 1982

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NASA's search for extra-terrestrial life may soon come to depend on help from Amateur Radio. San Jose, California based Delta Vee Corporation, a non-profit organization that funds the continuation of deep space research, has announced a project they call "CQ E.T." The concept is to use existing Ham Radio stations to re-start the recently discontinued NASA "SETI" (Search for Extra-Terrestrial Intelligence) program. Budgetary restraints forced a halt to "SETI" this year, and it is unknown at this time whether or not Congress will approve funding in the next budget to resume this official NASA project. Delta Vee is, therefore, taking on the "SETI" responsibility and will provide funding assistance to bona fide Amateurs who have the necessary expertise to

assist.

Westlink Report, October 22, 1982

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Logging could become a thing of the past if the FCC is successful in a new Notice of Proposed Rule Making. In PR Docket 82-726, the Commission suggests deleting all logging requirements other than those which they term "purely operational," such as methods used to provide the security of a remotely controlled station against unauthorized operation. In addition, Amateurs would be required to retain certain information documenting the technical aspects of a repeater, remote base or auxiliary link station, but not necessarily as part of a station log. The logging requirement by international treaty would, of course, be retained.

Westlink Report, November 5, 1982

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The FCC has proposed a radical change in the Novice exam. If it is adopted, it would require the (General class or higher) volunteer examiner to devise and administer both the Code and Theory portions of the test. If an applicant passed, the examiner would certify the fact on a Form 610, and mail just the completed form to the FCC for the issuance of a license. The person administering the test would be required to keep examination material on file for one year. Currently, the volunteer devises only the CW portion of the examination, with the FCC supplying the written.

Westlink Report, November 5, 1982

CHUCKLE KORNER

LARGE METEOR SMASHES
VHF BANDS

from GEARVAKF Bulletin, via ARNS

The two meter band from 144.0 to 144.09 MHz will be out of service for over a month due to meteor damage according to a technical report issued by the FCC last week.

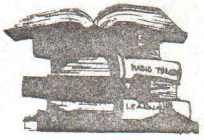
According to the report, a very large meteor entered the earth's atmosphere about ten days ago, smashir through the VHF region, ripping jagged hole in the frequencies extending from 141.79 to 144.09. The force of the collision was so powerful that some Megahertz fragments were scattered from 107 to 186 MHz up and down the band, disrupting commercial FM, police, aircraft, public service, Amateur and weather communications for an hour or more.

In the main impact area, no communications will be possible until repairs are made. An FCC spokesman, Ralph R. Spiffeo, said that it could take up to three months to clean up and patch the damaged Megahertz. Until the frequencies are fixed, the FCC has asked all operators to turn off their radios and use the telephone.

OOPS

In last issue's report on the Wellesley Veteran's Parade Ken McNair KA1ACX, should have been listed as o' of the participants. Sorry Ken.

education corner



A starting date for the next Novice class has been set. The class is scheduled to being on Tuesday, January 11, 1983 and classes will be held at the club each Tuesday thereafter. The time will be 7:00 p.m. If you know of someone who is interested in getting started in Amateur Radio, please let them know about the class. For more information, contact Education Chairman Art Thompson, KA1ENP, at 235-5509.

ANNOUNCEMENT

Don't forget, no meetings this month, but come down to the Natick Mall Message Fair December 15th through the 19th.